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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,688	07/23/2003	Jack H. Jacobs	H0003320	6684

7590 09/19/2005

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EXAMINER
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CONNOLLY, PATRICK J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/624,688	<b>Applicant(s)</b> JACOBS ET AL.	
	<b>Examiner</b> Patrick J. Connolly	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7.11.05; 9.24.03</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if the limitation “of about 80 or 125 micrometers” is a range or a set of alternatives. Further the limitation “of about” is unclear as to the scope of the size of the fiber.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 8 and 12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 6,377,352 to Coronato et al (hereafter Coronato).

As to claim 1, Coronator discloses an angular rate and reaction torque assembly including (see Figure 4 below, also column 6):

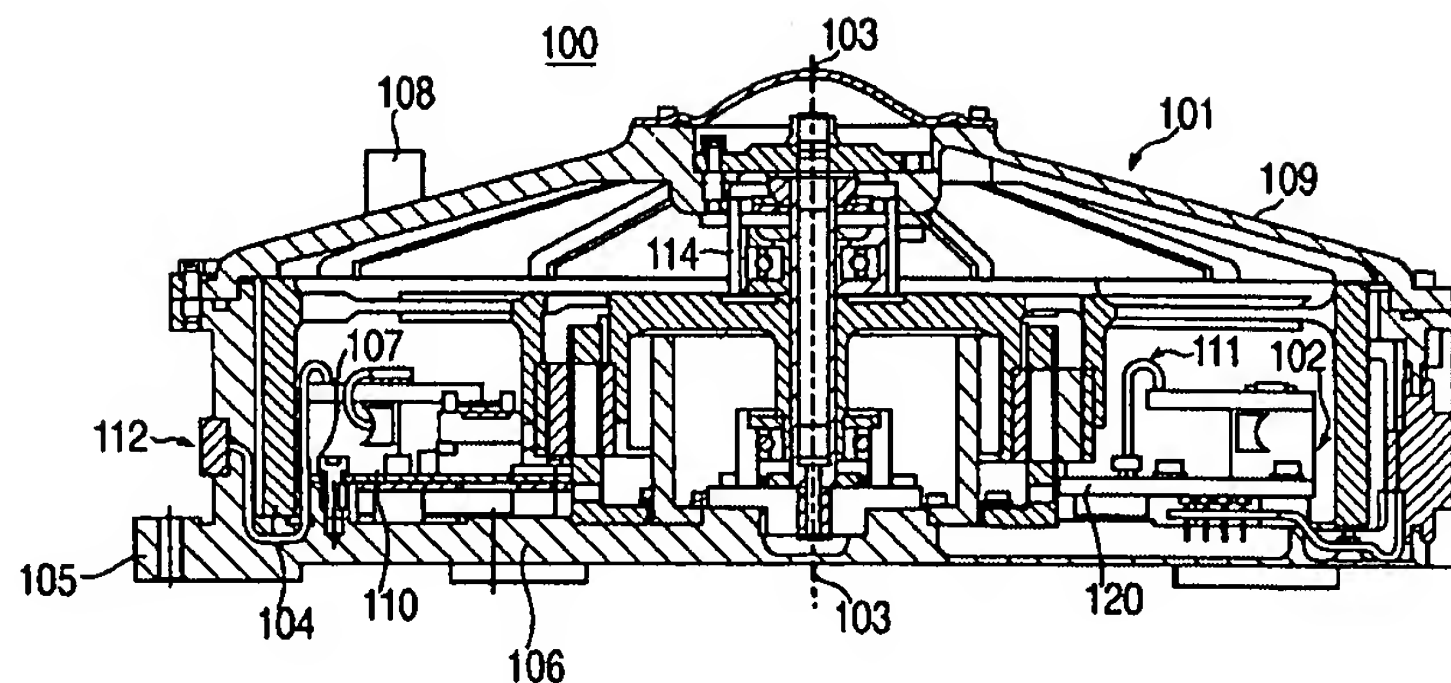


FIG. 4

a reaction wheel assembly (101) having a reaction wheel assembly housing (106);

a fiber optic gyro coil integrated with said housing (102, 110);

fiber optic gyro electronics integrated with said housing (110).

As to claims 2 and 3, Coronato discloses various embodiments of coil integration including one in which the gyro coil is wound around the circumference of the housing (see column 6, lines 11-19).

As to claim 4, Coronato discloses locating the electronics in a base portion of the housing (110, see Figure above).

As to claims 7 and 8, Coronato discloses attitude reference systems comprising multiple gyro wheel assemblies (see column 1).

As to claim 12, Coronato discloses locating the coil within the housing (see Figure above).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coronato as applied above.

As to claim 5, while Coronato does not teach a specific calibration procedure for the gyro in relationship to the reaction wheel assembly, the examiner takes Official Notice of the fact that it is well known in the art to calibrate motion sensors, including fiber gyros, with respect to the environment in which they operate.

It would have been obvious to one of ordinary skill in the art at the time of invention to calibrate the gyro of Coronato with respect to the reaction wheel assembly so as to achieve accurate measurements with respect to relative motion.

As to claim 6, Coronato does not specifically describe the electronic optical components used in combination with the fiber optic gyro. The examiner takes Official Notice of the fact that it is well known in the art to use light sources, couplers, spatial filters, detectors, polarizers and phase modulators in combination with fiber optic gyros, as these components are necessary to obtain accurate readings from said gyros.

It would have been obvious to one of ordinary skill in the art at the time of invention to include said components in the gyro controls of Coronato so as to achieve accurate rate measurements.

As to claim 9, Coronato does not disclose a specific material or diameter for the fiber used in the fiber optic coil. The examiner takes Official Notice of the fact that it is well known in the art to use fused silica in fiber coils and further that it is well known in the art to choose an

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appropriately sized fiber based on the diameter of the coil to be constructed so as to create stable coils with minimal strain on the fiber.

It would have been obvious to one of ordinary skill in the art at the time of invention to use a fused silica fiber of a sufficient diameter in the gyro of Coronato so as to achieve a stable fiber optic gyro.

As to claims 10 and 11, Coronato does not disclose a specific wavelength of the light source used in combination with the gyro reaction wheel assembly. The examiner takes Official Notice of the fact that it is well known to use light sources in the near-infrared region, including those with a wavelength between 0.83 and 1.55 micrometers in combination with fiber optic gyros so as to have low-energy sources for detection with relatively sufficiently short coherence length to minimize errors caused by backscattering in the fibers.

It would have been obvious to one of ordinary skill in the art at the time of invention to use such a light source in the apparatus of Coronato, so as to reduce errors in the gyro measurements.

"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the

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judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made."

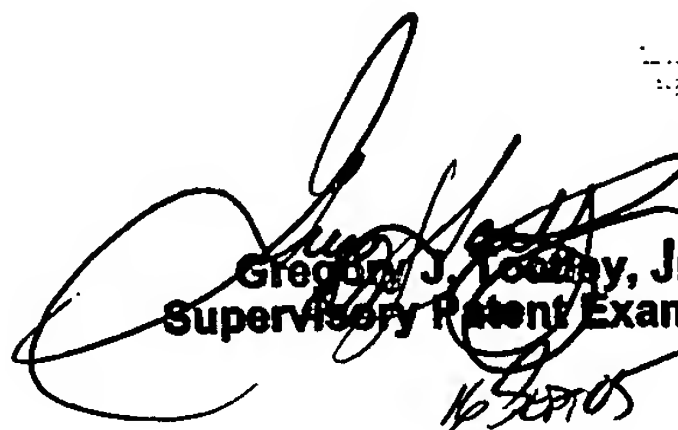
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc *PJC*  
09.14.2005

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
16 SEPT 05